

A New Species of the Genus *Pterostichus* (Coleoptera, Carabidae)  
from Mt. Fukube-ga-take, Chûnô District of  
Gifu Prefecture, Central Japan

Akemichi SUGIMURA

282–19, Dokino, Kiyosu-shi, Aichi, 452–0914 Japan

**Abstract** A new species of the macrocephalic pterostichine carabid beetle is described from the Chûnô District of Gifu Prefecture, Central Japan, under the name of *Pterostichus fukube*.

A new macrocephalic pterostichine carabid beetle was discovered from the Chûnô District of Gifu Prefecture, Central Japan. This area, extending to the north of the Nôbi Plain and its northern to eastern parts facing the southern ends of the Ryôhaku Mountains, the Hida Mountains and the Kiso Mountains, is sectionalized intricately by three large rivers, the Kiso River, the Nagara River and the Ibi River which are collectively called the Kiso-san-sen. Therefore it seems very interesting for analysing the distribution and speciation of the pterostichine carabids. The author and his colleagues have been investigating the fauna of pterostichine carabids for more than five years in this area. In the autumn of 2004, they were able to obtain rather a long series of a characteristic macrocephalic pterostichine carabid on the ridge of Mt. Fukube-ga-take which is located almost at the southern end of the Mino Mountains, the small mountains ranging to the south of the Ryôhaku Mountains. Although two species of macrocephalic pterostichine carabids have already been known from the neighboring areas, namely *Pterostichus uedaorum* MORITA et HIRASAWA (1996, pp. 27–30) from Mt. Iwôzen and Mt. Haku-san, and *Pterostichus todai* MORITA et KANIE (1997, pp. 163–167) from Mt. Éna-san, this species is distinguishable from these species by having some peculiar characteristics and is new to science. In this paper, the author will describe it under the name of *Pterostichus fukube*.

The abbreviations used in the table inserted in this paper are as follows: HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum (measured along the median line); PA – width of pronotal apex; PB – width of pronotal base; EW – greatest width of elytra; EL – greatest length of elytra; M – arithmetical mean; SD – standard deviation.

Before going further he wishes to express his hearty thanks to Dr. Shun-Ichi UÉNO of the National Science Museum, Tokyo for his critical reading of the manuscript. He is also indebted to Mr. Ryôji TOYOSHIMA of Nagoya for his kind help and ad-

vice in this study. Thanks are also due to Messrs. Shôji KATÔ of Tsushima-shi, Aichi Prefecture and Naoki TODA of Nagoya and to Mrs. Yoriko INAGAKI of Yokkaichi-shi, Mie Prefecture for their kind cooperation in collecting the materials.

The holotype to be designated in this paper will be preserved in the collection of the National Science Museum, Tokyo.

*Pterostichus fukube* SUGIMURA, sp. nov.

[Japanese name: Mino-ôzu-naga-gomimushi]

(Figs. 1-2, 3a)

Length (measured from clypeal apex to elytral apices): 14.4–16.3 mm in male; 15–18.7 mm in female (relatively larger in size than other allied species). Humeral width: 3.1–3.6 mm in male, 3.3–4.2 mm in female. Other significant measurements are shown in Table 1.

Body rather flat, almost impunctate. Colour dark reddish brown to blackish brown; head darker though the labial and maxillary palpi, labrum, antennae and legs are lighter.

Head voluminous and rounded, slightly narrower than or almost as wide as the widest portion of pronotum, and in female, sometimes a little wider than that; apical margin of labrum rather shallowly emarginate; frontal furrows apparently long and distinct, extending near vertex at apparently behind the post-eye level and reaching a little beyond frontal suture, rather incurvately convergent towards frontal suture on frons, almost paralleled on clypeus; clypeal base bearing several longitudinal wrinkles outside and along frontal furrows, the wrinkles sometimes fused and forming rather deep furrows, apical margin of clypeus almost straight though very shallowly emarginate; eyes very small and entirely flat; temporae moderately and evenly arcuate, not so strongly tumid; lateral grooves slightly arcuate, short and deep, extending from the mid-eye level and terminating fairly before the posterior supraorbital setae; additional grooves obliquely arcuate, short and shallow though distinct, extending from a little behind the ends of eyes and reaching near the posterior ends of lateral grooves though these grooves are never joining; anterior supraorbital setae situated a little inside the lateral

Table 1. Measurements of *Pterostichus fukube* SUGIMURA, sp. nov.

13♂♂	Length (mm)	PW/HW	PW/PL	PW/PA	PW/PB	PA/PB	EW/PW	EL/EW
M	15.55	1.06	1.48	1.14	1.27	1.12	1.25	1.65
SD	0.632	0.016	0.048	0.013	0.029	0.032	0.021	0.041
27♀♀	Length (mm)	PW/HW	PW/PL	PW/PA	PW/PB	PA/PB	EW/PW	EL/EW
M	17.15	1.02	1.51	1.10	1.30	1.18	1.23	1.67
SD	0.842	0.213	0.316	0.230	0.274	0.249	0.258	0.349

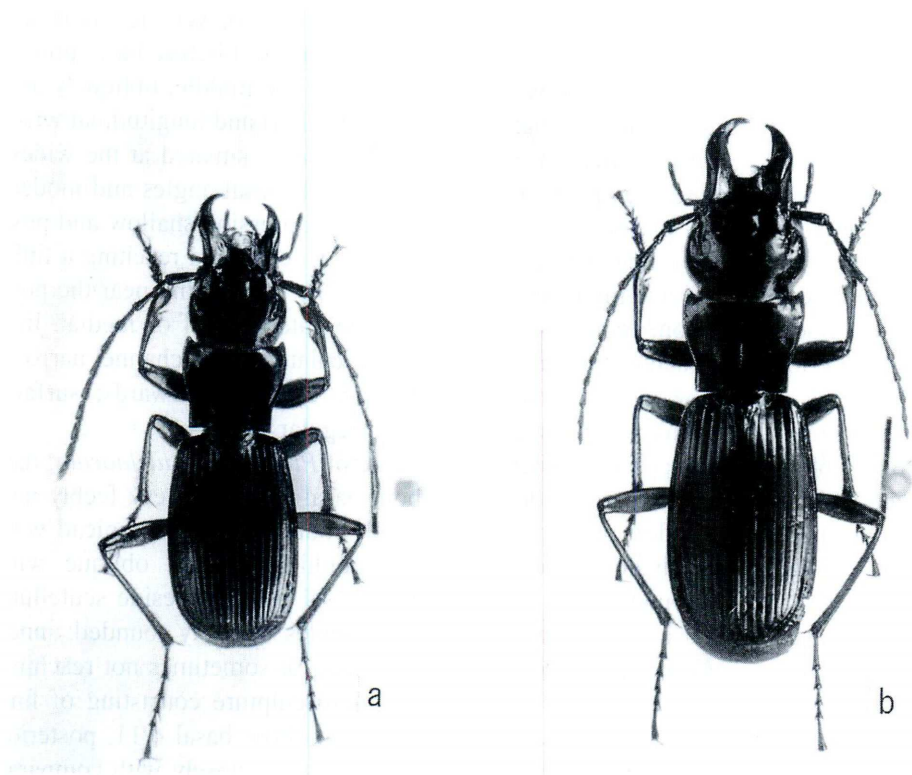


Fig. 1. *Pterostichus fukube* SUGIMURA, sp. nov., from Mt. Fukube-ga-take; a: male (holotype); b: female (paratype).

grooves at post-eye level; genae smooth without wrinkles on ventral surface except for the portions just outside gular sutures, which are shallowly, shortly and transversely wrinkled; gular sutures very fine and indistinct; mentum tooth bifid; mentum and submentum smooth without wrinkles; a pair of very shallow pits located just on the meeting points of gular sutures and basal margin of submentum; mandibles very long, left one a little longer than the right, somewhat sinuate near base and strongly hooked inwards at about apical 1/4; antennae subfiliform, ratio of each segment (I–XI) as follows: about 1:0.47:0.79:0.79:0.77:0.76:0.69:0.63:0.57:0.54:0.61 in male and about 1:0.52:0.79:0.81:0.78:0.76:0.70:0.63:0.59:0.54:0.63 in female, 2nd segment unisetose or sometimes asetose, surface almost smooth, shallowly, very sparsely and microscopically punctate only near the frontal furrow, microsculpture on occiput consisting of meshes.

Pronotum rather flat, obtrapezoidal, widest at about apical 1/6 in male or at about apical 1/8 in female (measured along the median line); pronotal apex moderately emarginate, apical angles strongly and acutely protruding with tips very narrowly rounded; sides feebly arcuately convergent from the widest portion to apical angles, evenly and



feebly sinuately convergent to basal 1/4, then almost paralleled or very feebly divergent towards the base and extremely slightly convergent again just before base; pronotal base not bordered, weakly though widely emarginate at the middle, obliquely and almost straightly truncate beside the emargination, lacking short and longitudinal wrinkles along the middle of basal margin; anterior marginal setae situated at the widest portion, posterior ones situated apparently before and inside basal angles and moderately remote from the tips of corners; anterior transverse impression shallow and posterior one obsolete; median line shallow though distinct, anterior end reaching a little beyond the anterior transverse impression and posterior one terminating near the posterior transverse impression; transverse wrinkles beside anterior half of median line shallow; posterior angles acute, sometimes weakly denticulate; lateral channel narrow; basal foveae very shallow and narrow, rather linearly extended forwards; surface smooth and impunctate, microsculpture consisting of irregular meshes.

Elytra oblong-ovate, apparently shorter than those of *Pterostichus uedaorum*, flat, widest at about basal 5/9, linearly widened to about basal 1/7, then very feebly and roundly widened to the widest portion and moderately roundly narrowed apicad with preapical emarginations shallow though distinct; shoulders narrow, oblique with humeral corners widely rounded and never angulate; basal portions beside scutellum weakly depressed; elytral apices divided and sutural angles obtusely rounded; inner plica hardly visible; basal border incomplete and reaching or sometimes not reaching stria 2; intervals scarcely convex, bearing distinct microsculpture consisting of fine meshes; interval 3 with two dorsal pores, anterior one at about basal 6/11, posterior one at about apical 1/7, each pore adjoining stria 2; interval 7 closely with comparatively deep and short transverse wrinkles near base; striae shallow, stria 1 apparently becoming shallower near apical end, stria 2 slightly curved outwards near apical end and not joining stria 1, striae 3–4 and 5–6 respectively joining each other, terminating fairly before elytral apex, stria 6 sometimes not reaching and stria 7 never reaching the basal border; scutellar striole very short and shallow, lying on interval 1, not joining stria 1; marginal series of pores 15–16 in number, widely spaced at the middle.

Legs slender; dorsal surface of all tarsi smooth, scattering sparse punctures near apical margin; setae on ventral surface of 4th tarsi very long; protibiae slightly bowed at apical 1/3 in both sexes; femora long and slender, surface smooth; surface of hind coxae and trochanters smooth, without wrinkles and punctures.

Prosternum and propleuron smooth, impunctate; prosternal process not bordered, longitudinally depressed medially, with apex obtusely angulate; mesosternum shallowly punctate only near the middle; metasternum impunctate; sternites 3–4 bearing irregular and shallow wrinkles near lateral sides; sternites 5–6 bearing several longitudinal and shallow wrinkles; terminal sternite in male weakly and transversely raised near the middle, widely, shallowly and subcircularly depressed between apical setae, and also feebly and longitudinally raised at the middle, with apical margin narrowly margined and almost evenly rounded though slightly sinuate at the middle, the margination slightly broadened and somewhat indistinct at the middle, a pair of setae situated a

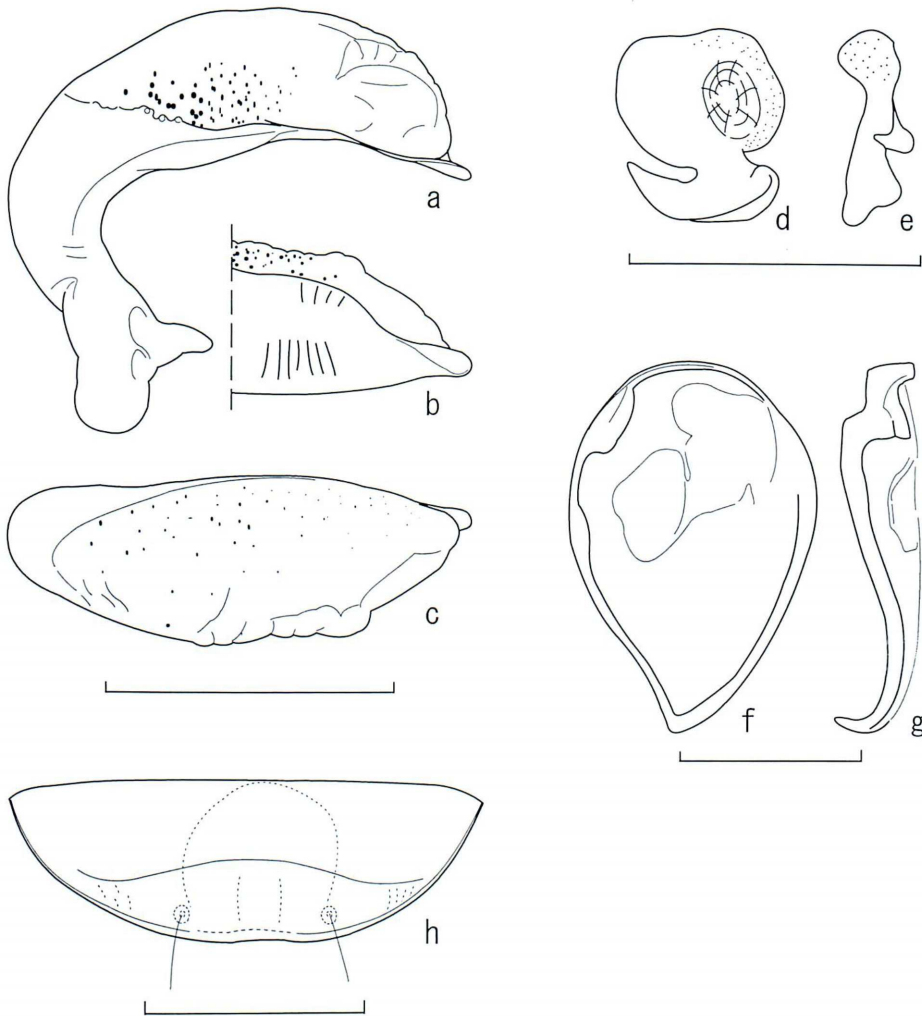


Fig. 2. Male genitalia of *Pterostichus fukube* SUGIMURA, sp. nov., holotype; a–c, aedeagus: a, left lateral view; b, apical part in ventral view; c, dorsal view; d, left paramere; e, right paramere; f–g, genital segment: f, ventral view; g, left lateral view; h, male terminal sternite. Scale: 2 mm.

little before apical margin, and the pit of setal pore shallow and rather large in size; terminal sternite in female shallowly and transversely depressed at apical 1/3 and bearing a pair of vague and round depressions at the sides before the transverse depression, apex more weakly sinuate than in male, narrowly and distinctly bordered, the margination near the middle narrower than in male.

Aedeagus widely and evenly arcuate, not so strongly bent at about basal 1/3, clearly constricted at about basal 1/4; ventral side rather flat, weakly swollen medially, with several pairs of distinct and transverse notches on both sides just before the

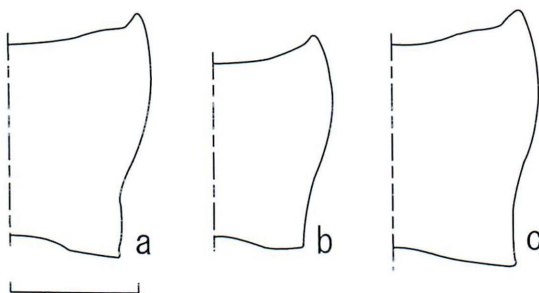


Fig. 3. Pronota — a, *Pterostichus fukube* SUGIMURA, sp. nov., holotype; b, *Pterostichus uedaorum* MORITA et HIRASAWA, from Mt. Iwōzen; c, *Pterostichus todai* MORITA et KANIE, from Mt. Éna-san. Scale: 2 mm.

swollen area, the notches on the right side deeper than those on the left; left margin rapidly narrowed at apical 1/4; apical lobe produced, with apex rounded in dorsal view and weakly reflexed in lateral view; right paramere short, not elongate, with apex rounded and weakly produced forwards, weakly bent inwards near the base, surface smooth, sparsely punctured only on outer surface, microsculpture near the middle of inner surface consisting of meshes; left paramere wide and quadrate with corners rounded, posterior margin curved inwards, roundly and rather deeply concave at the middle of anterior portion, microsculpture near posterior portion of outer surface consisting of meshes.

*Type series.* Holotype: ♂, Mt. Fukube-ga-take, ca. 1,000 m in alt., Minami-chō, Gujō-shi, Gifu Pref., 5~12-IX-2004, Akemichi SUGIMURA leg. Paratypes: 2♂♂, 2♀♀, same data as for the holotype, 3♂♂, 3♀♀, same locality as for the holotype, 12~18-IX-2004, Akemichi SUGIMURA leg.; 1♂, 1♀, same locality as for the holotype, 18~25-IX-2004, Akemichi SUGIMURA leg.; 1♂, 3♀♀, same locality as for the holotype, 25-IX~2-X-2004, Shōji KATŌ leg.; 1♀, same locality as for the holotype, 2~11-X-2004, Akemichi SUGIMURA leg.; 3♀♀, same locality as for the holotype, 11~24-X-2004, Shōji KATŌ leg.; 2♂♂, 1♀, same locality as for the holotype, 24-X~4-XI-2004, Shōji KATŌ leg.; 1♂, 8♀♀, same locality as for the holotype, 4~14-XI-2004, Ryōji TOYOSHIMA leg.; 1♂, same locality as for the holotype, 27-V~4-VI-2005, Yoriko INAGAKI leg.; 1♂, Mt. Kōka-san, ca. 700 m in alt., Itadori, Seki-shi, Gifu Pref., 26-IX~2-X-2004, Yoriko INAGAKI leg.; 2♀♀, same locality, 2~11-X-2004, Ryōji TOYOSHIMA leg.; 1♂, 1♀, same locality, 11~24-X-2004, Ryōji TOYOSHIMA leg.; 1♀, same locality, 24~30-X-2004, Shōji KATŌ leg.; 1♀, same locality, 24-X~3-XI-2004, Akemichi SUGIMURA leg.

*Localities.* Mt. Fukube-ga-take and Mt. Kōka-san, Chūnō District, Gifu Pref., Central Japan.

*Notes.* This new species is easily distinguishable from other allied species by having the following characteristics: 1) body almost impunctate, 2) the median lobe of male genitalia almost evenly and moderately arcuate, and weakly bent inwards at basal



1/3 in lateral view, 3) the elytra comparatively short with shoulders narrow and oblique.

*Etymology.* The species name, *fukube* is originally the Japanese noun meaning gourds. This new species is named after the mountain name of the type locality and also the body shape resembling a gourd.

## 要 約

杉村明道：岐阜県中濃地方の瓢ヶ岳から発見されたナガゴミムシの1新種。—— 岐阜県中濃地方は濃尾平野の北に位置し、北部から東部にかけては両白山地、飛騨山地および木曽山地に囲まれ、木曽三川といわれる木曽川、長良川および揖斐川により複雑に区画されているので、ナガゴミムシの分布や種分化に関して非常に興味深い地域である。著者らは2004年秋に、両白山地の南に連なる美濃山地の南端に位置する瓢ヶ岳で特徴的なオオズナガゴミムシを採集した。近隣からはすでに、医王山と白山から記載されたウエダオオズナガゴミムシ *Pterostichus uedaorum* と、恵那山から記載されたエナオオズナガゴミムシ *Pterostichus todai* が知られているが、本種は体表面がほとんど点刻されないこと、雄交尾器中央片は一様に弧状で基部1/3で緩やかに屈曲すること、鞘翅は短く肩部が狭く傾斜することなどの特徴を有しており、既知のオオズナガゴミムシとは容易に区別できるので、ミノオオズナガゴミムシ *Pterostichus fukube* SUGIMURA, sp. nov. と命名して記載した。

## References

- MORITA, S., 2004. A new *Pterostichus* (Coleoptera, Carabidae) from the Suzuka Mountains, Central Japan. *Elytra, Tokyo*, **32**: 29–33.
- & H. HIRASAWA, 1996. Macrocephalic pterostichines (Coleoptera, Carabidae) from central Honshu, Japan. *Ibid.*, **24**: 21–30.
- & N. KANIE, 1997. A new macrocephalic pterostichine (Coleoptera, Carabidae) from Central Japan. *Ibid.*, **25**: 163–167.